

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas G. Eschweiler ON 5/15/08.

The application has been amended as follows:

In the claims:

Claims 2-9: Cancelled.

Claim 15 (Currently Amended) The ion shower of claim 17, wherein the extraction apertures of the ~~first extraction plasma~~ electrode each have an area, ~~and wherein extraction apertures of the other extraction electrodes are substantially aligned with the first extraction electrode extraction apertures, respectively.~~

Claim 17 (Currently amended) (Currently amended) An ion shower, comprising:
a plasma source operable to generate source gas ions within a chamber;
an extraction assembly associated with a top portion of the chamber, and operable to extract ions from the top portion thereof; and
a workpiece support structure associated with the top portion of the chamber, and operable to secure the workpiece having an implantation surface orientated facing downward toward the extraction assembly for implantation thereof,

wherein the extraction assembly comprises a plurality of extraction electrodes vertically oriented with respect to one another and operable to extract the ions vertically from the top portion of the chamber,

wherein a plasma electrode is a first extraction electrode of the plurality of extraction electrodes and is closest to the plasma within the chamber, and wherein the plurality of extraction electrodes comprise[s] a plurality of respective extraction apertures extending therethrough, and wherein

corresponding extraction apertures in the plurality of extraction electrodes are substantially aligned along a beam axis with respect to each other, respectively, and

wherein at least one of the other extraction electrodes further comprise interstitial pumping apertures, wherein the interstitial pumping apertures are not aligned with respect to the extraction apertures with respect to ~~[[a]]~~ the beam axis generated by beamlets passing through the extraction electrodes, and wherein the interstitial pumping apertures reduce a pressure near the extraction assembly external to the chamber.

Claims 19-37, 42, 43 and 46-53: Cancelled.

Claim 58 (Currently amended) The ion shower of claim 60, wherein the extraction apertures of the ~~first extraction plasma~~ plasma electrode each have an area, ~~and wherein extraction apertures of the other extraction electrodes are substantially aligned with the first extraction electrode extraction apertures, respectively.~~

60. (Currently amended) (Currently amended) A non-mass analyzed ion implantation system comprising:

- a plasma chamber including a plasma source operable to generate source gas ions therein;
- an extraction assembly operable to extract ions from the plasma chamber;
- a process chamber for receiving the ions extracted from the extraction assembly; and
- a workpiece support assembly situated in said process chamber, and operable to secure a workpiece in an orientation for being implanted by the ions extracted,

wherein the extraction assembly is associated with a top portion of the plasma chamber, and is operable to extract ions from the top portion thereof, and

wherein the workpiece support assembly is operable to secure the workpiece having an implantation surface orientated facing downward toward the extraction assembly for implantation thereof,

wherein the extraction assembly comprises a plurality of extraction electrodes vertically oriented with respect to one another and operable to extract the ions vertically from the top portion of the plasma chamber,

wherein a plasma electrode is a first extraction electrode of the plurality of extraction electrodes and is closest to the plasma within the chamber, and wherein the plurality of extraction electrodes comprise[[s]] a plurality of respective extraction apertures extending therethrough, and wherein corresponding extraction apertures in the plurality of extraction electrodes are substantially aligned along a beam axis with respect to each other, respectively, and

wherein at least one of the other extraction electrodes further comprise interstitial pumping apertures, wherein the interstitial pumping apertures are not aligned with respect to the extraction apertures with respect to [[a]] the beam axis generated by beamlets passing through the extraction electrodes, and wherein the interstitial pumping apertures reduce a pressure near the extraction assembly external to the chamber.

Claims 62-64: Cancelled.

Drawings

The following changes to the drawings have been agreed by the applicant:

Fig 9 – Reference number shown as 202 (plasma electrode) to be changed to 204 (extraction electrode) as per page 16, lines 10-15 of the specification.

Allowable Subject Matter

Claims 12-18, 38-41 and 56-61 allowed.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Art Unit: 1792

Claims 17, 60: Closest prior art [(Satou et al – US 4,676,194) and Aisenberg (US 3,961,103)] do not teach claim limitation “wherein at least one of the other extraction electrodes further comprise interstitial pumping apertures, wherein the interstitial pumping apertures are not aligned with respect to the extraction apertures with respect to the beam axis generated by beamlets passing through the extraction electrodes” in the context of remaining limitations of the claims.

Claim 38: Closest prior art [(Satou et al – US 4,676,194) and Aisenberg (US 3,961,103)] do not teach claim limitation “the extraction electrode -----further comprising one or more interstitial pumping apertures -----wherein the one or more interstitial pumping apertures are not aligned with respect to the extraction apertures with respect to the beam axis generated by beamlets passing through the extraction electrodes” in the context of remaining limitations of the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH K. DHINGRA whose telephone number is (571)272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rakesh K Dhingra/
Examiner, Art Unit 1792

/Parviz Hassanzadeh/
Supervisory Patent Examiner, Art Unit 1792